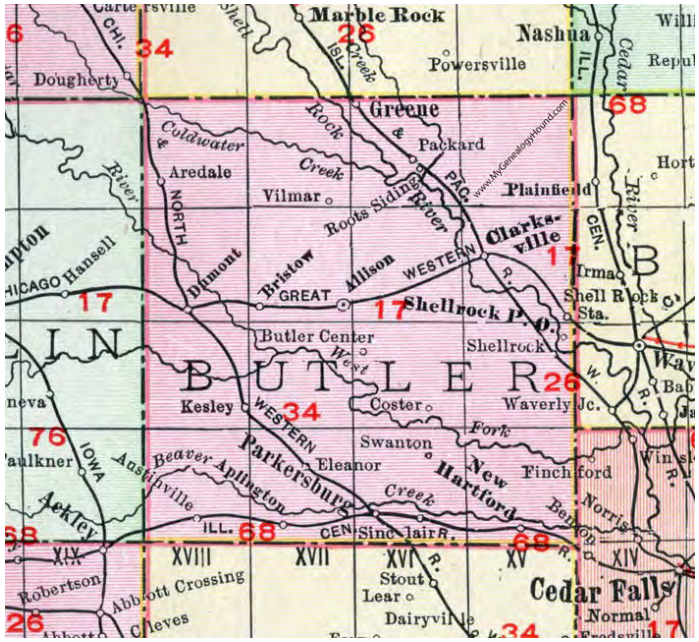
Waverly-Shell Rock Community School District

Hazard Mitigation Plan
2025 Update

Appendix 0
of Butler County
Multi-Jurisdictional
Hazard Mitigation Plan



Funded by the Butler County Emergency Management Agency

Prepared by Iowa Northland Regional Council of Governments (INRCOG)

January 2025

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Resolution Adopting Plan by School Board

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About

The Waverly-Shell Rock CSD developed this Plan as part of the 2020 Butler County Multi-Jurisdictional Hazard Mitigation Plan update process. The 2025 Butler County Multi-Jurisdictional Hazard Mitigation Plan is a sequential 5-year update to the previous document. Federal regulations regarding how local governments may receive funding from FEMA require that the specified jurisdiction (city, school district, county) have an approved hazard mitigation plan that is in good standing (updated and FEMA approved) to remain eligible for grant funding. This Plan was developed to meet the requirements in Title 44 CFR § 201.6.

Elected officials, city clerks, planners, first responders, and other stakeholders were invited to attend planning committee meetings as participants to learn about hazard mitigation and complete data gathering assignments. These assignments were submitted to the plan development coordinators: Butler County Emergency Management Agency (EMA) and Iowa Northland Regional Council of Government (INRCOG). Butler County's EMA initiated and funded this effort for all participating communities and contracted INRCOG to coordinate the plan development process with a multi-jurisdictional approach.

Participating communities included all ten (10) incorporated municipalities of Butler County. County staff participating in the committee were representing their respective County departments. School district superintendents for four public school districts attended and completed the data gathering assignments for their district communities. Four (4) committee meetings were held between October 1st and December 12th wherein each participant provided data and completed work sheets to develop their hazard mitigation plans.

FEMA's Emergency Management Cycle

What is Hazard Mitigation?

Hazard Mitigation is any *sustained* action taken to reduce or eliminate long-term risk to life and property from hazards.

The emergency management cycle has 4 phases:

- **Preparedness** is the assessment of potential risks, hazards, and vulnerabilities that a community may face. The development and updating of activities, programs, and systems before an event occurs is included in this phase of the cycle.
- **Response** is the immediate effects after a disaster.
- **Recovery** is a long-term phase that focuses on returning the community to normal after a disaster.
- **Mitigation** is an action that can occur at any phase.

The Benefits of Hazard Mitigation for Local Governments

For local governments, there are benefits in knowing how specific hazards may affect their communities, its potential to cause negative impacts, and develop pre-disaster actions or activities to lessen or avoid those anticipated negative impacts. Benefits include:

- ✓ An increased understanding of how natural and human caused hazards develop under certain conditions which may inform a level of magnitude or intensity.
- ✓ Take advantage of the opportunity to create more sustainable and disaster-resistant communities.
- ✓ Participating in this collaborative intergovernmental effort is cost effective for all participants.
- ✓ Using limited resources to address the threat from hazard events that may have the biggest impact on the community.
- ✓ Reducing or preventing damage to existing structures and reducing their subsequent repair costs.
- ✓ Identifying vulnerable populations to establish equitable outcomes.
- ✓ Hazard mitigation involves a commitment to long-term goals that focus on lessening or reducing negative impacts of natural, and human caused hazards.

The Planning Process

In order to reduce the threat of negative impacts from natural hazards, a risk informed approach was used in this planning process. A risk informed approach is a multi-step process. This Plan also involves collaboration among participants in the planning committee. The process involved learning the historical occurrence of when such hazards may have occurred in Butler County.

Participants in the Butler County Multi-Jurisdictional Hazard Mitigation Plan Planning Committee determined the level of risk facing their communities by completing a risk assessment. Data gathering by committee participants involved giving updates to existing mitigation activities by the local government.

Participants in the Plan followed a general 5 step process. (below)

Community School District Profile

Jurisdiction: Waverly-Shell Rock Community School District
Counties: Butler, Bremer, Black Hawk, and Chickasaw County
School Enrollment (2023-24): 2,228.68

The Waverly Shell-Rock Community School District is based in the cities of Waverly and Shell Rock. The district provides pre-kindergarten through 12th grade education to over 2,200 students.

The school district conducts fire drills 4 times a year tornado drills 4 times a year. There is 1 tabletop active shooter drill, and 2 bus safety drills each year. The school district has a safety team made up of 9 members to review all safety issues within the district.

The school district has four tornado safe rooms/areas. They are in Prairie West Elementary (Kindergarten Rooms), North Ridge Elementary (Kindergarten Rooms), Waverly-Shell Rock Middle School (Auditorium), and Waverly-Shell Rock High School (Classrooms/Offices).

The district has ESL (English as a Second Language) resources available to students as needed.

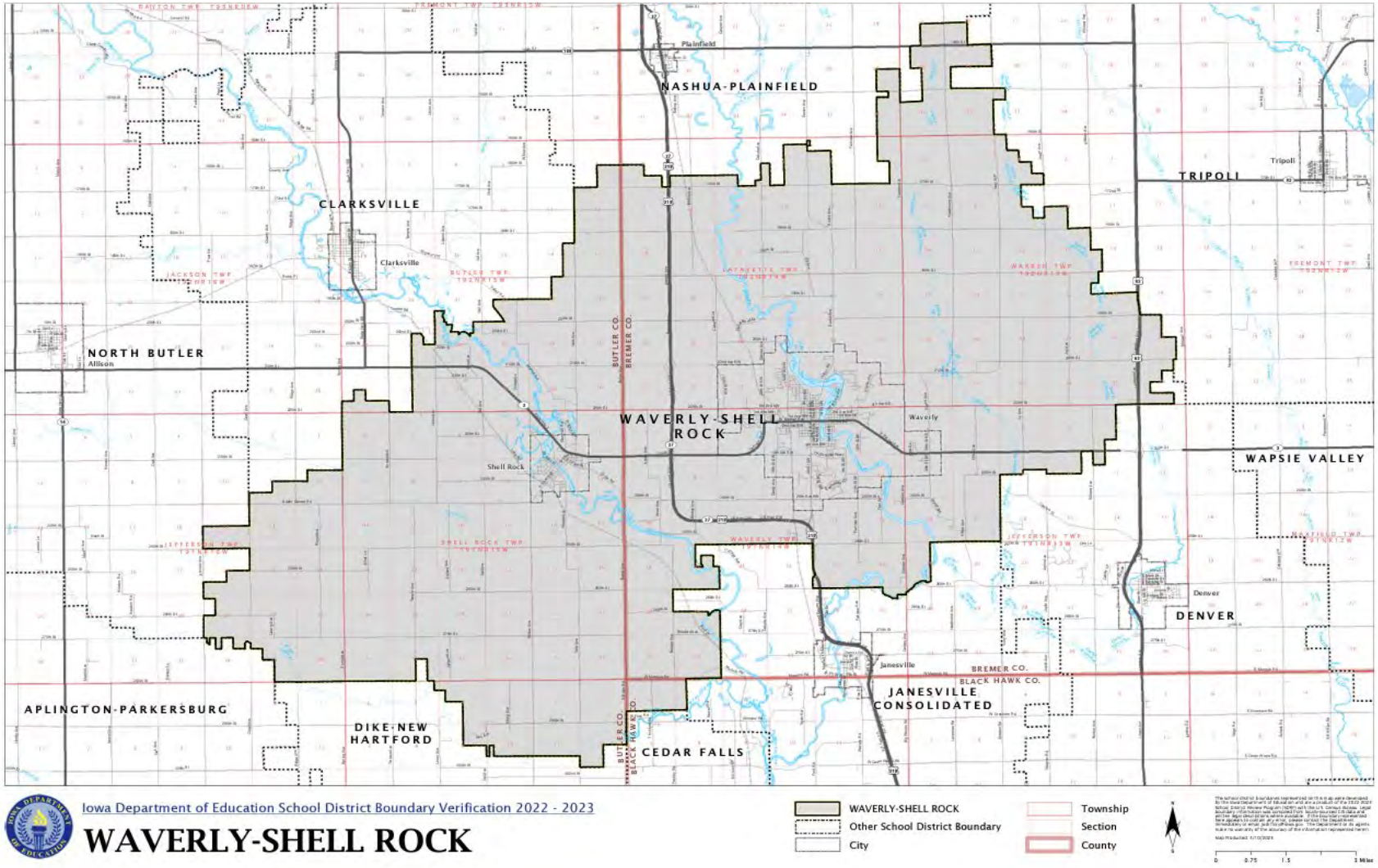
The district has approximately 20 bus routes with around 850 students a day, covering 1,200 miles.

Finally, the School District has two emergency and safety plans that were updated in 2024: District Emergency Response Plan and Building Level Emergency Operations Plan.

Table 1: District Schools

Little Go-Hawk Learning Center	Shell Rock Elementary School	Prairie West Elementary School	North Ridge Elementary School	Waverly-Shell Rock Middle School	Waverly-Shell Rock High School
809 4th Street Waverly, IA 50677	214 N Cherry Street Shell Rock, IA 50670	3000 5th Ave NW Waverly, IA 50677	101 North Ridge Pkwy Waverly, IA 50677	501 Heritage Way Waverly, IA 50677	1405 4th Ave SW Waverly, IA 50677

Figure 1: District Map (Source: Iowa Dept. of Education)



Critical Facilities

The school district has 6 critical buildings shown in the table below.

Table 2: Critical Facilities

Little Go-Hawk Learning Center	809 4th Street Waverly, IA 50677
Shell Rock Elementary School	214 N Cherry Street Waverly, IA 50677
Prairie West Elementary School	3000 5th Ave NW Waverly, IA 50677
North Ridge Elementary School	101 North Ridge Pkwy Waverly, IA 50677
Waverly-Shell Rock Middle School	501 Heritage Way Waverly, IA 50677
Waverly-Shell Rock High School	1405 4th Ave SW Waverly, IA 50677

Community Utility Providers

Table 3: Utility Providers

Utility	Provider
Electric	MidAmerican Energy, Waverly Utilities
Natural Gas	MidAmerican Energy
Water	City of Waverly, Shell Rock
Sewer	City of Waverly, Shell Rock
Sanitation	City of Waverly, Shell Rock
Telephone	Waverly Utilities, Butler-Bremer Communications
Internet	Waverly Utilities, Butler-Bremer Communications

Future Development

Recent updates in Title 44 CFR §201.6 (c) (2) (i) require this risk assessment include a section with future conditions on the type, location, and range of anticipated intensities of natural hazards.

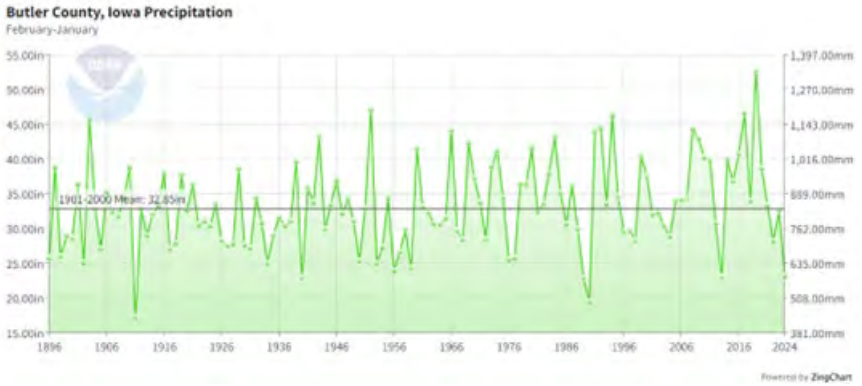
Long term trends of climate patterns for the region were summarized in the Fourth National Climate Assessment Midwest Section.[1] The National Climate Report is mandated to be updated every 4 years and deliver results to Congress and President on the effects to agriculture, energy productions, land use, transportation, and human health.

Yearly precipitation levels and annual average temperatures offer insights into future conditions of our climate system.

Annual Precipitation Levels in Butler County

Taking the monthly precipitation records from January to December between 1895 and 2024 is shown in Figure 6. The values hover between 20 – 50 inches of precipitation levels recorded. The average precipitation level for the year is plotted and a linear trend of those values is shown in Figure 6. The trend shows a growing level of annual precipitation on average of 32.80 inches. Based on this historical trend, precipitation is likely to continue to increase in the coming years.

Figure 2: Historical Precipitation Data and Trend for Butler County, Iowa[2]



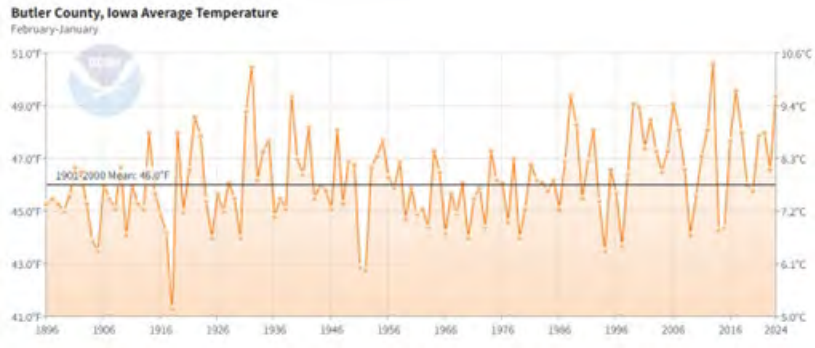
Average Annual Temperatures in Butler County

The monthly average temperature is plotted over a 12-month period from 1885 to 2023 in Figure 7. The annual average temperature is also shown with a linear trend in Figure 7. This trend shows the average temperature in Butler County increasing at a rate of +0.1° F every 10 years.

[1] USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.

[2] NOAA National Centers for Environmental information, Climate at a Glance: County Time Series, published February 2024, retrieved on April 15, 2024 from https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series

Figure 3: Historical Temperature Data and Trend for Butler County, Iowa[2]



Climate Patterns from Increasing Precipitation and Higher Temperatures

The relationship between increasing precipitation, temperature, and drought is complex, and often counterintuitive at first thinking about it. While increasing precipitation may seem like it would mitigate drought conditions, higher temperatures can exacerbate the situation in several ways:

1. Evapotranspiration: Higher temperatures lead to increased evaporation rates from soil, bodies of water, and plants. This means that even if there is more precipitation, it may quickly evaporate before it can effectively replenish soil moisture or water sources.
2. Changes in precipitation patterns: Increasing temperatures can alter precipitation patterns, leading to more intense rainfall events but also longer periods of drought between these events. This pattern can result in rapid runoff and soil erosion during heavy rain, followed by extended dry periods that contribute to drought conditions.

Overall, while increasing precipitation may provide temporary relief from drought, the combined effects of rising temperatures can outweigh this benefit, leading to more frequent and severe drought events in certain regions.

Pest Infestation

With more humidity, the daily minimum temperature may increase across all seasons. Warming winters can increase the survival and reproduction of existing insect pests which allow new insect pests and crop pathogens to move into the Midwest region.

Extreme Heat Domes

A heat dome is a weather phenomenon characterized by a high-pressure system that traps hot air beneath it, leading to prolonged periods of extremely high temperatures and often causing heatwaves. Extreme heat events during the summers may occur more frequently in the Midwest.

The human impacts of extreme heat affect socially and economically vulnerable populations the most. The higher costs of energy during heat waves disproportionately impact cost-burdened households. Heat related illness may be more severe among infants, elderly populations, and those with chronic health conditions.

Projected Trends of Natural Hazards in Butler County

- Prologued drought may occur as the atmosphere holds more moisture (even pulling moisture from plants) as the temperature increases. Longer periods between weather events mean there are dryer and longer periods in between these events.
- Floods (flash or major types) will increase in intensity as the atmosphere holds more moisture to drive stronger storms and drop heavier rainfall over a shorter period during an event.
- Extreme heat may occur more frequently. Human health impacts are higher among socially vulnerable populations (the elderly, infants, those with chronic health issues, cost burdened households).
- Agricultural pests and pathogens may increase in growing plants and stored grain. Warming temperatures in the spring and summer have led to rising humidity. Higher dew and moisture conditions may increase the presence of these pests or crop diseases.

Hazard Risk Assessment

The top three hazards from the risk assessment are:

1. Hazardous Materials
2. Flash Flood
3. Severe Winter Storms

Methodology

This risk assessment identifies how people, property, and structures would be harmed or damaged by one of the listed hazard events. Iowa Homeland Security and Emergency Management Department (Iowa H.E.S.M.D.) provided the hazard risk score formula for determining the level of risk used in this analysis.

Factors of Hazard Risk

Risks to a hazard event may differ across geographical locations or even differ based on certain times of year. For example, tornado season in Iowa is usually in May and tornados have the highest risk during this time due to change in weather patterns from the western and central Gulf of Mexico causing higher chances of extreme weather.

For this analysis, four hazard risk factors are rated on a scale between 1 and 4 by committee participants after reviewing profiles of each hazard with the planning coordinator. Information was shared with the committee which described the hazard, historical occurrences, impact, duration, and warning time. Participants used this information to strengthen their understanding to rate each hazard factor.

Hazard Risk Score Formula

[Probability] **x 45%** + [Magnitude or Severity] **x 30%**
+ [Warning Time] **x 15%** + [Duration] **x 10%**
= Final Hazard Assessment

Source: Provided by Iowa H.S.E.M.D.

Hazard scores were collected during the 2nd county committee meeting. INRCOG planners calculated the hazard risk score for each hazard based on the formula in this section. Results are shown below.

Score Value vs. Hazard Risk Level	Description of hazard with this rating
Scores with a value closer to 1: Low risk hazard	Hazard is not likely to affect people or property because the likelihood is minimal.
Scores with a value closer to 4: High risk hazard	The hazard has historically occurred and may have significant impacts to people and property.

Probability

The probability score reflects the likelihood of the hazard occurring in the near future. Historical data of the hazard event occurring in Butler County or Iowa informed the likelihood of future occurrence.

Probability Score Definitions

Score	Description	
1	Unlikely	*Less than 10%* probability in any given year (up to 1 in 10 chance of occurring), a history of events is less than 10% likely or the event is unlikely but there is a possibility of its occurrence.
2	Occasional	*Between 10% and 20%* probability in any given year (up to 1 in 5 chance of occurring), history of events is greater than 10% but less than 20% or the event could possibly occur.
3	Likely	*Between 20% and 33%* probability in any given year (up to 1 in 3 chance of occurring), history of events if greater than 20% but less than 33% or the event is likely to occur.
4	Highly Likely	*More than 33%* probability in any given year (event has up to a 1 in 1 chance of occurring), history of events is greater than 33% likely or the event is highly likely to occur.

Magnitude or Severity

The magnitude or severity of the hazard event is measured by the level of impact on the human environment. Property damage is assessed by the whole planning area.

Magnitude or Severity Score Definitions

Score	Description	
1	Negligible	Less than 10% of property severely damaged, the shutdown of facilities and services for less than 24 hours, and/or injuries/illnesses treatable with first aid
2	Limited	10% to 25% of property severely damaged, shutdown of facilities and service for more than a week, and/or injuries/illnesses that do not result in permanent disability.
3	Critical	25% to 50% of property severely damaged, shutdown of facilities and services for at least two weeks, and/or injuries/illnesses that result in permanent disability.
4	Catastrophic	More than 50% of property severely damaged, shutdown of facilities and services for more than 30 days, and/or multiple deaths.

Warning Time

This should be taken as an anticipated warning time.

The warning time score assesses the ability to warn a population before the hazard occurs. The values of the score range from 1 (at least 24 hours) to 4 (minimal or no warning time).

For many of the climate hazards, there is a considerable amount of warning time as opposed to the human-caused hazards (transportation and hazardous materials incidents) that occur instantaneously or without any significant warning time.

Warning Time Score Definitions		
Score	**Description**	
1	Forecasted	More than 24 hours warning time.
2	Likely	12 to 24 hours warning time.
3	High Chance	6 to 12 hours warning time
4	Imminent	Minimal or no warning time (up to 6 hours warning)

Duration

The duration is the time of a typical or expected hazard event to occur. For an earthquake or traffic accident that is a score of 1. For infrastructure failure, it is likely a 4.

The table below displays rated risk scores for each associated hazard. This assessment was completed by city representatives based on hazard profiles prepared for the planning committee.

Duration Score Definitions	
Score	**Description**
1	Less than 6 hours
2	Less than 1 day
3	Less than 1 week
4	More than 1 week

Table 4: Hazard Risk Assessment					
Hazards	**Probability**	**Magnitude**	**Warning Time**	**Duration**	**Score**
Hazardous Materials	3	3	4	4	3.25
Flash Flood	3	3	3	4	3.1
Severe Winter Storm	4	3	1	2	3.05
Extreme Heat	4	2	1	3	2.85
Thunderstorm/Lightning/Hail	3	3	2	2	2.75
River Flood	3	3	1	3	2.7
Tornado/Windstorm	3	2	3	2	2.6
Pandemic Human Disease	2	3	1	4	2.35
Transportation Incident	2	2	4	1	2.2
Infrastructure Failure	1	3	4	2	2.15
Animal/Crop/Plant Disease*	2	2	1	4	2.05
Drought	2	1	1	4	1.75
Terrorism*	1	1	4	3	1.65
Sinkholes*	1	1	3	4	1.6
Earthquake*	1	1	4	1	1.45
Landslides*	1	1	4	1	1.45
Grass/Wild Land Fire*	1	1	3	2	1.4
Radiological Incident*	1	1	2	3	1.35
Levee/Dam Failure*	1	1	2	2	1.25
Expansive Soils*	1	1	1	1	1

Source: Completed by School Representative. Calculated score completed by INRCOG.

*Hazard were deemed to have no impact on the jurisdiction, thus no specific action strategy was developed .

Hazard Mitigation Goals

Waverly-Shell Rock Community School District

The following list of goals was developed by planning committee participants from the associated jurisdiction. Goals 1 through 7 were developed in the previous 2020 Butler County Multi-Jurisdictional Hazard Mitigation Plan. The planning committee participants chose to adopt the same goals and add additional goals after review.

Goal #1 Minimize to the greatest possible extent the number of injuries and/or loss of life associated with all identified hazards.

Goal #2 Reduce or eliminate property damage due to the occurrence of disasters.

Goal #3 Improve response operations in the event of a disaster.

Goal #4 Return the community to either a pre-disaster or improved conditions in a timely manner in the wake of a disaster.

Goal #5 Develop strategies that can be used to reduce the community's overall risk to the negative effects of natural, technological, and man-made disasters.

Goal #6 Reconvene the planning committee annually to review the plan document, check for compliance with the plan goals, and track progress in achieving the mitigation strategies.

Goal #7 Maintain the Countywide Multi-Jurisdictional format for future updates.

Mitigation Activities by Type

Mitigation actions and activities in this Plan will be organized according to these 5 categories: Emergency Services, Education and Outreach Projects, Natural Resource Protection or Natural Based Solutions, Structural Projects, or Local Plans and Regulations.

Emergency Services

Butler County Emergency Management Agency

The School District works with the Butler County Emergency Management Coordinator, based out of the City of Allison, on various safety and emergency events as well as the Bremer County Emergency Management Coordinator based in Waverly. The Emergency Management Coordinator works in conjunction with local fire, rescue, police, and government officials to draft and implement workable emergency action plans in the community. The Butler County Emergency Management Coordinator is Chris Showalter. The Bremer County Emergency Management Coordinator is Aaron Goodenbour.

Law Enforcement

The City of Waverly has its own police force. They handle a range of essential services, including routine patrols, emergency response, and criminal investigations. The City of Shell Rock is covered by the Butler County Sheriff's Department located in Allison, IA.

Fire Protection and EMS Services

Fire protection for the City of Shell Rock is provided by the Shell Rock Fire Department. There are 23 volunteer fire fighters that serve in the department currently. Each of the members is HAZMAT certified Firefighter 1 trained. There are several members that have Firefighter 2 training, and others with driver/operator training. Dispatch is provided via a paging system called I Am Responding app that is accessible through a phone app.

The Shell Rock Fire Department maintains 28E agreements with surrounding communities to provide additional support when needed and required.

EMS Services

Butler County EMS represents all 8 of the EMS service in the County. Butler County Board of Supervisors deemed EMS an Essential Service for the County according to Iowa Code Chapter 422D and recently hired an EMS Coordinator to provide coverage and support for EMS services within the county.

Medical Facilities

The City of Shell Rock has one medical clinic associated with the Waverly Health Center.

The Waverly Health Center is located in Waverly, approximately 5 miles east of Shell Rock.

HAZMAT Response Teams

The City of Shell Rock and Waverly contracts with Northeast Iowa Response Group for response to hazardous material spills. The Northeast Iowa Response Group is a division of Waterloo Fire Rescue as is the Hazardous Materials Regional Training Center. The Training Center provides training to fire departments and companies from around the state and country. Not only is this a training center, but it also serves as a hazardous materials quick response unit to Black Hawk County, surrounding counties, and many municipalities in a ten-county region. The Unit provides local fire departments with hazard materials emergency procedures thus reducing additional contamination. An evacuation plan is also in place in conjunction with the activities of the local department. Contact information for the facility is as follows: Hazardous Materials Regional Training Center, 1925 Newell Street, Waterloo, Iowa 50707, Phone: (319) 291-4275, Toll Free: (800) 291-4682, Fax: (319) 291-4285

The jurisdiction also partners with the Northeast Iowa Response Group for assistance in responding to any methamphetamine labs located in the city limits. The Response Group assists the Police Departments in the containment of the site and disposal of hazardous chemicals.

Warning Systems in Shell Rock

1. Tornado Sirens

   The City of Shell Rock has an activation system of warning sirens that are activated and operated by a central command system operated by the Butler County Rescue Squad in Allison, IA.

2) Alert Iowa Mass Communication System

   Butler County has implemented the use of Alert Iowa, a mass communication notification system. The system features are controlled through the Butler County Emergency Management Agency. Residents can customize their alert settings including the type of alerts they would get.

   Alert Iowa allows for emergency notifications via landline telephones, cell phones, email, text messages, and social media. This is useful for communities that may not have an operating warning siren or may not hear the sirens. The County will use its emergency notification network for all the following events: blizzards, flash flooding, severe thunderstorms, and tornadoes. There is an optional way to receive the same alert for events such as: excessive heat warnings, hazardous materials warnings, heavy snow warning, high wind warnings, ice storm warnings, law enforcement warnings, shelter in place warnings, sleet warnings, wind chill warnings, and winter storm warnings.

Current Mitigation Activities

The school district continues to take actions necessary to protect itself from hazards. Some of those activities include:

- Perimeter fencing at 2 elementary buildings in 2024
- Tornado safe rooms at 2 elementary buildings in 2024
- Access control improvements in 2024-2025
- Camera improvements in 2024-2025

How to Use the Implementation Guide in this Plan

Notes about the tasks (listed as line items) on the tables on the following pages.

- Each task (line item) stands on its own so it can be completed whenever possible.
- Each action item is not limited to the details presented below and may change based on future conditions.
- The tasks were categorized based on mitigation type. The mitigation types are not shown in any order (no priority over the other).

Cost	Estimated Cost Range
Minimal	Less than $10,000
Low	$10K to $99K
Moderate	$100K to $299K
High	Greater than $300K

This implementation strategy is presented to help with the general understanding of how hazard mitigation may feed into the school district's existing or future priorities.

Priority Level

The priority level was informed through discussions among planning committee members who considered potential benefits of implementing the activity, some hurdles that the city may face in implementing the action step, and the drawbacks of implementation. *Committee representatives considered a cost-benefit approach.*

Timeframe & Estimated Costs

Cost estimates are based on the associated costs of additional staffing that may or may not be needed, time for planning/meetings/coordinating, and cost of the proposed action/program/ project. The time frame to complete the column is based on four designations (see table to the left).

Timeframe	Description
Immediate	1 – 6 months
Short Term	1-3 years
Mid-Term	3-5 Years
Long-Term	More than 5 Years

Waverly-Shell Rock Community School District Hazard Mitigation Strategy

Table 5: Waverly-Shell Rock Community School District Hazard Mitigation Action Steps						
Priority	**Mitigation Action/Program/Project**	**Associated Hazard(s)**	**Primary Agency Responsible for Implementation**	**Timeline**	**Estimated Cost ($)**	**Associated Goal(s)**
High	Continue mandated tornado drills and fire drills with students regularly as scheduled.	All	School and Local Fire/Police/County	Active	Minimal	1, 5
High	Maintain clear signage for rooms with flammable gases.	HAZMAT incident	School	On-going	Minimal	1, 2, 5
High	Systematically review and update, as needed, hazard response policies and procedures through the EOP.	All	School	Active	Minimal	All
High	Identify and Evaluate Critical Facilities for Accessibility, Vulnerability, and Risk Potential including evaluating terrorism mitigation efforts through the EOP.	Terrorism	School	On-going	Minimal	1, 2
High	Maintain a cooperative and effective relationship with the County Health Department for outbreak information.	Pandemic Human Disease	School and County	On-going	Minimal	1, 2, 6, 7
High	Encourage students and their families to register their households on Alert Iowa.	All	School and County	Short term	Minimal	1, 3, 5, 7
Medium	Ensure school maintenance crews continue to improve facilities to protect against extreme heat and drought scenarios.	Drought, Extreme Heat	School	Active	Moderate	1, 2, 5
Medium	Work with Butler County EMA Coordinator to develop more disaster preparedness and awareness activities with students.	All	School and County	Short term	Minimal	1, 2, 6, 7
High	Coordinate with Butler County Emergency Management Agency on emergency school plans and emergency preparedness drills.	All	School and County	Mid-term	Minimal	1, 2, 6, 7
High	Develop a “Tornado Safe Room” Awareness program including improving signs and access awareness.	Windstorm, Tornado, Infrastructure Failure	School and County	Mid-term	Minimal	1, 2, 5